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ABSTRACT

An electrostatic fluid accelerator having a multiplicity of closely spaced corona electrodes. The close spacing of such corona electrodes is obtainable because such corona electrodes are isolated from one another with exciting electrodes. Either the exciting electrode must be placed asymmetrically between adjacent corona electrodes or an accelerating electrode must be employed. The accelerating electrode can be either an attracting or a repelling electrode. Preferably, the voltage between the corona electrodes and the exciting electrodes is maintained between the corona onset voltage and the breakdown voltage with a flexible top high-voltage power supply. Optionally, however, the voltage between the corona electrodes and the exciting electrodes can be varied, even outside the range between the corona onset voltage and the breakdown voltage, in to vary the flow of fluid. And, to achieve the greatest flow of fluid, multiple stages of the individual Electrostatic Fluid Accelerator are utilized with a collecting electrode between successive stages in order to preclude substantially all ions and other electrically charged particles from passing to the next stage, where they would tend to be repelled and thereby impair the movement of the fluid. Finally, constructing the exciting electrode in the form of a plate that extends downstream with respect to the desired direction of fluid flow also assures that more ions and, consequently, more fluid particles flow downstream.